Claims

1. An arrangement for allowing disengagement of a gear of a gearbox in a vehicle, whereby the vehicle incorporates an engine (1) and a driveline (3-11) with a first portion (3-4) which extends from the engine (1) to a specific element (5a) of the driveline, and a second portion (6-11) which extends from said element (5a) to at least one powered wheel (2) of the vehicle, said element (5a) being adapted to allow elastic rotation between the first portion (3-4) of the driveline and the second portion (6-11) of the driveline when driving torque is being transmitted in the driveline, and whereby the arrangement incorporates a first sensor (16) adapted to detect the position (P_1) of a first component (4) of the first portion of the driveline (3-4), and a second sensor (17) adapted to detect the position (P_2) of a second component (8) of the second portion of the driveline (6-11), characterised in that the arrangement incorporates a control unit (12) adapted to store at least one measured value which is related to the mutual angle (A_{REF}) between the position ($P_{1,REF}$) of the first component (4) and the position ($P_{2,REF}$) of the second component (8) when a gear is engaged in the gearbox, and initiates a control action so that said mutual angle (A_{REF}) between the first component (4) and the second component (8) is rectified before said gear is disengaged.

2. An arrangement according to claim 1, characterised in that said specific element (5a) is incorporated in a clutch (5).

3. An arrangement according to claim 2, characterised in that said specific element is a clutch disc (5a) which allows elastic rotation between a hub (5b) and a peripheral portion (5d) of the clutch disc (5a).

4. An arrangement according to claim1, characterised in that said element (5a) allows elastic rotation of at least $\pm$ 8°.

5. An arrangement according to any one of the foregoing claims, characterised in that the first sensor (16) is adapted to detect a first parameter (P_1) which is related to the rotational position of a flywheel (4).

6. An arrangement according to any one of the foregoing claims, characterised in that the first sensor (16) is an existing sensor for detecting the speed of the engine (1).

7. An arrangement according to any one of the foregoing claims, characterised in that the second sensor (17) is adapted to detect a second parameter (P_2) which is related to the rotational position of the output shaft (8) of the gearbox (7).

8. An arrangement according to any one of the foregoing claims, characterised in that the second sensor (17) is an existing sensor for detecting the speed of the vehicle.

9. An arrangement according to any one of the foregoing claims, characterised in that the control unit (12) is adapted to initiate control of the output torque of the engine (1) in order to rectify the mutual angle (A_{REF}) between the first component (4) and the second component (8) before said gear is disengaged.

10. An arrangement according to any one of the foregoing claims, characterised in that the control unit (12) is adapted to activate a gearchange mechanism (15) in order to disengage the engaged gear when the mutual angle (A_{REF}) between the first component (4) and the second component (8) has been rectified.

11. A method for allowing disengagement of a gear in a gearbox (7) of a vehicle, whereby the vehicle incorporates an engine (1) and a driveline (3-11) with a first portion (3-4) which extends from the engine (1) to a specific element (5a) of the driveline, and a second portion (6-11) which extends from said element (5a) to at least one powered wheel (2) of the vehicle, said element (5a) being adapted to allow elastic rotation between the first portion (3-4) of the driveline and the second portion (6-11) of the driveline when driving torque is being transmitted in the driveline, and whereby the

method incorporates steps for detecting the position (P_1) of a first component (4) of the first portion of the driveline (3-4), and detecting the position (P_2) of a second component (8) of the second portion of the driveline (6-11), characterised by steps for storing at least one measured value which is related to a mutual angle (A_{REF}) between the position ($P_{1,REF}$) of the first component (4) and the position ($P_{2,REF}$) of the second component (8) when a gear is engaged in the gearbox (7), and for initiating a control action so that said mutual angle (A_{REF}) between the first component (4) and the second component (8) is rectified before said gear is disengaged.

12. A method according to claim 11, characterised by detecting a first parameter (P_1) which is related to the rotational position of a flywheel (4).

13. A method according to claim 11 or 12, characterised by detecting a second parameter (P_2) which is related to the rotational position of the output shaft (8) of the gearbox (7).

14. A method according to any one of the foregoing claims 11-13, characterised by controlling the output torque of the engine (1) in order to rectify the mutual angle (A_{REF}) between the first component (4) and the second component (8) before said gear is disengaged.

15. A method according to any one of the foregoing claims 11-14, characterised by activating a gearchange mechanism (15) in order to disengage the engaged gear when the mutual angle (A_{REF}) between the first component (4) and the second component (8) has been rectified.